



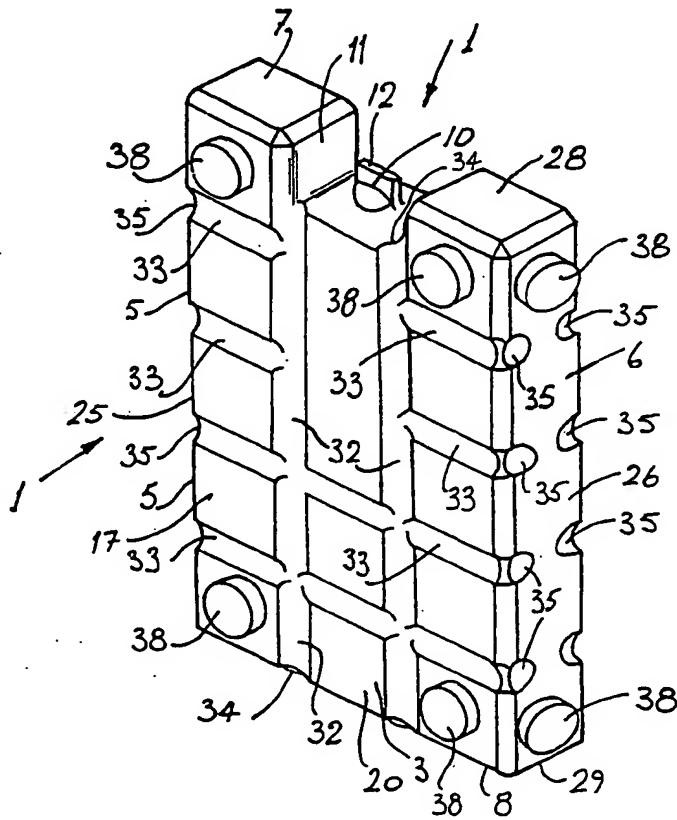
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(54) Title: AN ICE PACK CONTAINER

(57) Abstract

An ice pack container (1) comprising major front and rear side walls (3) and (4) joined by end walls (5) and (6) and top and bottom walls (7) and (8) which together define a hollow interior region (9) for a freezable liquid. A plurality of containers (1) may be connected together in stacked formation or in other configurations by a plurality of engagement members (38) which extend from the major front side wall (3) and the end wall (5) which are engageable with corresponding engagement recesses (39) in the major rear side wall (4) of an adjacent container (1). Air circulating grooves (32) and (33) in the front and rear side walls (3) and (4) facilitate air circulation between adjacent containers (1).



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"An ice pack container"

The present invention relates to an ice pack container.

Ice pack containers are extensively used in countries with a relatively warm climate for keeping food stuffs and other perishables cool, particularly, during transportation. Ice packs are also relatively commonly used for keeping food stuffs, drinks and the like in a picnic container cool. Such ice packs, in general, comprise a container containing a freezable liquid, such as water with additives which reduce the freezing point of the water. Typically, the container is of the type comprising a pair of opposite major side walls joined by minor end, top and bottom walls. A single inlet for charging the container with water or other freezable liquid is provided. The inlet may be adapted for receiving a closure member for permanently closing the inlet once the container has been charged with the freezable liquid, or a releasable closure member may be provided. The ice pack container with the freezable liquid contained therein is placed in a freezer box of a fridge or in a deep freeze until the freezable liquid has been preferably frozen solid. The ice pack container is then ready for use. Such ice pack containers may be refrozen many times. Unfortunately, known ice pack containers suffer from a number of disadvantages, firstly, in general, they are relatively difficult to store when not in use. While in general, they may be stacked one on top of the other with their major side walls horizontal, because of their construction, in general, a stack of ice pack containers can be easily knocked over inadvertently. A second disadvantage with known ice pack containers is that where a number of ice pack containers are to be frozen simultaneously, it is essential that they be spaced well apart from each other to permit the circulation of air around the respective containers. This is a considerable disadvantage in that it is not practical to stack the ice pack containers one on top of the other in a freezer box or in a deep freeze since this prevents the circulation of air over their

major surfaces. Thirdly, known ice pack containers when in use to cool food or other perishable goods must be propped up since, in general, because of their shape they are unstable when standing on a minor wall.

5 It is an object of the invention to provide an ice pack container which overcomes at least some of the problems of known ice pack containers.

The present invention is directed towards providing an ice pack container which overcomes at least some of the problems and 10 disadvantages of known ice pack containers.

The invention overcomes some of the problems of known ice pack containers by virtue of the fact that the ice pack container according to the invention comprises a container having an outer surface and an inner surface, the inner surface defining a hollow 15 interior region for storing a freezable liquid, wherein two connecting means are provided on the container for releasably connecting the container to respective adjacent containers, each connecting means comprising one of a pair of complimentary 20 releasably inter-engageable connecting formations for engaging the other of the pair of connecting formations on the other of the containers.

The ice pack container according to the invention has many 25 advantages over ice pack containers known heretofore. By virtue of the fact that the ice pack container is provided with connecting means for connecting the ice pack container to adjacent ice pack containers, a plurality of ice pack containers may be connected together. The ice pack containers can be stacked together side by side or one on top of the other or can 30 be connected together for forming a plurality of different configurations. When stacked together, the ice pack containers can be stored when not in use, and additionally, the ice pack containers can be stacked together while placed in a freezer box

of a fridge or a deep freezer during freezing of the freezable liquid. Additionally, the ice pack containers according to the invention can be connected together to form a number of different configurations so that when two or more ice pack containers are 5 connected together the containers will effectively stand freely without any external support being required. By virtue of the fact that the containers can be connected together when stacked, the containers can readily easily be shipped. A plurality of containers can be stacked together and can be shrink wrapped with 10 suitable shrink wrapping material.

Advantageously, the outer surface defines at least two opposite faces of the container, one of the connecting means being provided on one outer face, and the other connecting means being provided on the other outer face. The advantage of this feature 15 of the invention is that it enables the containers to be readily easily stacked.

In one embodiment of the invention the connecting formation of the connecting means of one face is of one type of connecting formation of the pair of complimentary inter-engageable connecting formations, and the connecting formation of the connecting means of the other face is of the other type of connecting formation of the pair of complimentary inter-engageable formations to facilitate connecting a plurality of the containers in series.

25 Preferably, a plurality of connecting means are provided on each face, on which connecting means are provided. Advantageously, the connecting formations on a face of the container are similar to each other. The advantage of providing a plurality of connecting means on each face on which connecting means are provided is that the containers can be connected together more 30 securely. Providing similar connecting formations on respective faces, facilitates flexibility in the number of ways the containers may be connected together.

In one embodiment of the invention the container comprises a pair of spaced apart opposite major side walls defining respective opposite major outer faces, a connecting means being provided on each of the major outer faces. Preferably, the opposite major side walls are joined by a minor wall extending around the periphery of the major side walls, the minor wall defining a minor outer face, and a connecting means being provided on the minor outer face. Advantageously, the minor wall comprises a pair of spaced apart minor end walls joined by spaced apart top and bottom minor walls which together with the two major side walls define the hollow interior region, the end, top and bottom walls defining respective minor outer end, top and bottom faces, and a connecting means being provided on one of the minor outer end faces.

15 In one embodiment of the invention respective connecting means are provided on opposite minor outer faces of the container.

In another embodiment of the invention the connecting formation of the connecting means of one of the minor faces is of one type of connecting formation of the pair of complimentary inter-engageable connecting formations, and the connecting formation of the connecting means of the other minor face is of the other type of connecting formation of the pair of complimentary inter-engageable connecting formations.

25 Advantageously, four connecting means are provided on each of the opposite major faces. Preferably, the major faces are of substantially rectangular shape and a connecting means is provided adjacent each of four diagonally opposite corners of the respective major faces.

30 In one embodiment of the invention two connecting means are provided on each minor face having a connecting means, the respective connecting means being provided at opposite ends of the minor face.

In a further embodiment of the invention the connecting formation of one of the connecting means comprises an engagement member projecting outwardly from the outer surface of the container for engaging a complimentary engagement recess in another container, 5 and the connecting formation of another connecting means is provided by an engagement recess extending into the outer surface of the container for engaging a corresponding engagement member of another container. The advantage of this feature of the invention is that it provides a relatively simple and 10 straightforward construction of connecting means, which is also relatively easy to produce.

Advantageously, each engagement member is of circular cross-section. Preferably, each engagement recess is of circular cross-section.

- 15 In one embodiment of the invention each engagement member and each engagement recess of the container are sized to engage a corresponding engagement recess or engagement member of another or other containers with a relatively tight interference type fit.
- 20 Preferably, the cross-sectional area of each engagement member is substantially similar to the cross-sectional area of each engagement recess of the container.

In one embodiment of the invention the connecting formation of the connecting means on the minor outer end face is an engagement member extending outwardly from the surface of the container, 25

In one embodiment of the invention the connecting formation of each connecting means comprises a pair of spaced apart engagement members projecting outwardly of the outer surface of the container for engaging a corresponding pair of engagement members projecting outwardly of the outer surface of another container, 30 the engagement members of each connecting means defining a

diagonal of a square which is defined by four of the engagement members of the pair of complimentary inter-engageable connecting formations, the spacing between the two engagement members of each connecting formation being such as to provide a relatively 5 tight fit when the two engagement members of the said connecting formation engage the two engagement members of the other said connecting formation. The advantage of this feature of the invention is that it provides a relatively straightforward and inexpensive form of connecting means, and also enables a 10 plurality of containers to be connected together in many different configurations. A further advantage of this feature of the invention is that it facilitates air flow over and between adjacent walls of adjacent containers when the containers are connected together. This is advantageous when freezing the 15 freezable liquid in the containers.

In another embodiment of the invention the connecting formation of one of the connecting means comprises an elongated engagement member extending longitudinally along the outer surface of the container and outwardly thereof.

20 In a further embodiment of the invention the connecting formation of another connecting means is provided by an elongated engagement recess extending longitudinally along the outer surface of the container and inwardly thereof.

25 In a still further embodiment of the invention the connecting formation of one of the connecting means comprises a hingeable member hingedly connected to and extending from the container.

30 In one embodiment of the invention an engagement opening is formed in the hingeable member for engaging a complimentary engagement member of another container. Preferably, the engagement opening is engageable with an engagement member on the container.

In a further embodiment of the invention at least one air circulating groove is provided in the outer surface of the container for facilitating air flow relative to the outer surface of the container.

5 The advantage of providing air circulating grooves on one or more faces of the containers is that air circulation along at least portion of the face carrying the air circulating groove is facilitated. This improves the efficiency with which the freezable liquid in the respective containers can be frozen when
10 a plurality of containers are stacked resting one on top of the other or side by side. Air circulation between adjacent containers is facilitated. Additionally, where an ice pack container is placed in a freezer box with one of its major faces resting on the base of the freezer box, circulation of air
15 through the air circulating grooves increases the efficiency with which the freezable liquid is frozen. Indeed, by placing a container in a freezer box or deep freezer with the engagement members extending from a major face or a minor face resting on the base of the freezer box or the freezer, further enhances the
20 air circulation around the container, thereby improving further the efficiency of freezing of the freezable liquid.

Provision of the connecting means in the form of pairs of inter-engageable engagement members further facilitates air circulation between adjacent containers since the respective adjacent
25 surfaces of adjacent containers are spaced apart by the engagement members.

A further advantage of placing the ice pack containers in a freezer box with their engagement members resting on the base of the freezer box or deep freezer is that there is little danger of
30 the ice pack containers sticking to the base of the freezer box or deep freezer.

Preferably, the air circulating groove is provided on a major

face of the container.

Advantageously, each air circulating groove extends the length of the container from one end wall to the other as a longitudinal groove.

5 Preferably, a pair of spaced apart longitudinal grooves are provided. Advantageously, an air circulating transverse groove extends transversely across the major face from one end wall to the other.

10 In a further embodiment of the invention a pair of spaced apart transverse grooves are provided. Preferably, the air circulating grooves are interconnected.

In one embodiment of the invention a sealable inlet is provided to the hollow interior region of the container.

15 In another embodiment of the invention the sealable inlet comprises an elongated inlet tube extending from the container. Preferably, the inlet tube extends from a minor wall of the container. Advantageously, the inlet tube is provided in a recess formed in the minor wall.

20 Preferably, the inlet tube is of heat sealable and deformable plastics material. Advantageously, the inlet is provided in a minor top wall of the container.

In another embodiment of the invention the container is of plastics material.

In one embodiment of the invention the freezable liquid is water.

25 Advantageously, the freezable liquid is a mixture of water and sodium carboxymethylcellulose.

The invention will be more clearly understood from the following description of some preferred embodiments thereof given by way of example only with reference to the accompanying drawings, in which,

5 Fig. 1 is a front perspective view of an ice pack container according to one embodiment of the invention,

Fig. 2 is a rear perspective view of the ice pack container of Fig. 1,

10 Fig. 3 is a front elevational view of the ice pack container of Fig. 1,

Fig. 4 is a rear elevational view of the ice pack container of Fig. 1,

Fig. 5 is an end elevational view of the ice pack container of Fig. 1,

15 Fig. 6 is a top plan view of the ice pack container of Fig. 1,

Fig. 7 is a sectional plan view of the ice pack container of Fig. 1 on the line VII - VII of Fig. 4,

20 Fig. 8 is a cross-sectional end elevational view of the ice pack container of Fig. 1 on the line VIII - VIII of Fig. 4,

Fig. 9 is a perspective view of a number of ice pack containers of Fig. 1 assembled together,

25 Fig. 10 is a plan view of a number of ice pack containers assembled together in another configuration,

10

Fig. 11 is a perspective view of an ice pack container according to another embodiment of the invention,

Fig. 12 is a rear perspective view of the ice pack container of Fig. 11,

5 Fig. 13 is a front elevational view of an ice pack container according to another embodiment of the invention,

Fig. 14 is a rear elevational view of the ice pack container of Fig. 13,

Fig. 15 is an end elevational view of the ice pack container of Fig. 13,

Fig. 16 is a top plan view of the ice pack container of Fig. 13,

Fig. 17 is a cross-sectional plan view of the ice pack container of Fig. 13 on the line XVII - XVII,

15 Fig. 18 is a front perspective view of an ice pack container according to another embodiment of the invention,

Fig. 19 is a rear perspective view of the ice pack container of Fig. 18,

20 Fig. 20 is a perspective view of an ice pack container according to a further embodiment of the invention,

Fig. 21 is a perspective view of a number of the ice pack containers of Fig. 20 illustrated assembled together.

25 Fig. 22 is a perspective view of two ice pack containers

according to a further embodiment of the invention illustrated assembled together,

5 Fig. 23 is a perspective view of an ice pack container according to a still further embodiment of the invention, and

Fig. 24 is a rear perspective view of the ice pack container of Fig. 23.

Referring to the drawings and initially to Figs. 1 to 10 there is illustrated an ice pack container according to the invention indicated generally by the reference numeral 1. The ice pack container 1 is of plastics material formed by injection blow moulding, and comprises spaced apart parallel front and rear major side walls 3 and 4, respectively, joined by spaced apart parallel minor end walls 5 and 6 and spaced apart parallel minor top and bottom walls 7 and 8, respectively, which extend between the end walls 5 and 6. The walls 3 to 8 define an outer surface 17 and an inner surface 18. The inner surface 18 defines a hollow interior region 9 for receiving and storing a freezable liquid, in this case, a mixture of water and sodium 10 carboxymethylcellulose with a freezing point of approximately -1°C. Such freezable liquids will be known to those skilled in the art. A closable inlet for charging the hollow interior region 9 with the freezable liquid comprises an inlet tube 10 of plastics material formed integrally with the container 1 extending from the top wall 7. The plastics material of the inlet tube 10 is heat deformable and is heat sealable so that on the hollow interior region 9 being charged with the freezable liquid the inlet tube 10 may be deformed and heat sealed permanently. The top wall 7 is shaped to form a recess 11 for accommodating the inlet tube 10 so that when the inlet tube 10 is heat sealed the top end 12 of the inlet tube 10 is below the outer surface 17 of the top wall 7.

The outer surface 17 of the major front and rear side walls 3 and 4 define opposite major faces 20 and 21, respectively. The outer surfaces 17 of the minor end walls 5 and 6 define opposite minor end faces 25 and 26, respectively. The outer surfaces 17 of the top and bottom walls 7 and 8 define minor top and bottom faces 28 and 29, respectively. The major front and rear side walls 3 and 4 are shaped to form a pair of longitudinally extending spaced apart air circulating grooves 32, and four transversely extending spaced apart air circulating grooves 33 which are interconnected with the longitudinal air circulating grooves 32 to facilitate circulation of air along the major faces 20 and 21 of the major side wall 3 and 4. The longitudinal grooves 32 extend into the outer surface 17 and along the entire length of the major faces 20 and 21 from the top wall 7 to the bottom wall 8, and extend at 34 partly into the faces 28 and 29 of the top and bottom walls 7 and 8. The transverse grooves 33 extend into the outer surface 17 and from the end walls 5 and 6 and extend at 35 partly into the end walls 5 and 6. Two of the transverse grooves 33 extend the width of the major faces 20 and 21 while the other two transverse grooves 33 extend from the end walls 5 and 6 to the longitudinal grooves 32.

A plurality of connecting means for connecting the container 1 to adjacent similar containers 1 as illustrated in Figs. 9 and 10 comprise respective connecting formations of pairs of complimentary inter-engageable releasable connecting formations for engaging another connecting formation of a connecting means on an adjacent container. In this embodiment of the invention the connecting formations of the pairs of complimentary connecting formations are provided on the two major faces 20 and 21 and on the end face 26. Four connecting formations are provided on the major front face 20, and each connecting formation is provided by an engagement member 38 of circular cross-section formed integrally with the container 1 and extending outwardly of the outer surface 17. Four connecting formations are formed on the major rear face 21, and each

connecting formation is provided by an engagement recess 39 of circular cross-section formed integrally with the container 1 and extending inwardly of the outer surface 17. The engagement members 38 engage corresponding engagement recesses 39 on the 5 major face 21 of an adjacent similar container 1 when the two containers 1 are assembled or stacked with their respective major faces 20 and 21 abutting each other, see Fig. 9. The cross-sectional area of the engagement members 38 is substantially similar to the cross-sectional area of the engagement recesses 29 10 so that the respective engagement members 38 engage the engagement recesses 39 of another similar container 1 with a relatively tight interference fit. A pair of connecting formations provided also by engagement members 38 are formed on the end face 26 of the minor end wall 6 for engaging two 15 corresponding engagement recesses 39 in the major face 21 so that a pair of containers 1 can be connected together as illustrated in Fig. 10 to be free standing. The engagement members 38 on the end wall 6 are identical to the engagement members 38 on the front side wall 3. The major faces 20 and 21 are of rectangular 20 shape, and the engagement members 38 and engagement recesses 39 are provided adjacent the corners of the major faces 20 and 21.

In use, when the ice pack containers 1 are not required, the ice pack containers 1 are stored as illustrated in Fig. 9 with the respective front and rear side walls 3 and 4 of adjacent 25 containers abutting each other and the engagement members 38 on the front side walls 3 engaging the engagement recesses 39 on the rear side wall 4 of the adjacent container. The containers connected in this configuration may be stacked one on top of the other with their front and rear side walls 3 and 4 horizontal or 30 may be stored on their top or bottom walls 7 or 8 or end walls 5 or 6 with their front and rear side walls 3 and 4 extending substantially vertically.

When it is desired to use the ice pack containers 1, the containers charged with the freezable liquid are placed in the

freezer box of a fridge or in a deep freezer in the configuration illustrated in Fig. 9, in other words, with the front and rear side walls 3 and 4 of adjacent containers abutting each other and the engagement members 38 engaged in the engagement recesses 39 of the front and rear side walls 3 and 4. In general, it is preferred that the containers 1 be placed in the freezer box or deep freezer with their front and rear side walls 3 and 4 extending horizontally, and preferably, with the engagement members 38 of the lower most container 1 engaging the base of the freezer box or deep freeze. By virtue of the fact that the air circulating grooves 32 and 33 are provided in the major faces 20 and 21 of the front and rear side walls 3 and 4 adequate air circulation is provided along the major faces 20 and 21 to provide for relatively quick and efficient freezing of the freezable liquid in the containers 1. When the freezable liquid is frozen solid in the containers 1, the ice pack containers are ready for use. The ice pack containers 1 may be placed around the food, drink or other items to be maintained at a cool temperature. Alternatively, the ice pack containers may be connected as illustrated in Fig. 10 or in any other desired orientation or configuration by inter-engaging the appropriate engagement members 38 and engagement recesses 39.

Referring now to Figs. 11 and 12 there is illustrated an ice pack container according to another embodiment of the invention indicated generally by the reference numeral 45. The ice pack container 45 is substantially similar to the ice pack container 1 and similar components are identified by the same reference numerals. The main difference between the ice pack container 45 and the ice pack container 1 is that two engagement members 38 are provided on the end wall 5 at opposite ends thereof and on the top and bottom walls 7 and 8, respectively, at opposite ends thereof. This increases the number of configurations into which a plurality of the containers 45 may be connected.

Referring now to Figs. 13 to 17 there is illustrated an ice pack

5 container 50 according to another embodiment of the invention. The ice pack container 50 is substantially similar to the ice pack container 1 and similar components are identified by the same reference numerals. The main difference between the ice pack container 50 and the ice pack container 1 is that the inter-engageable complimentary connecting formation comprise pairs of spaced apart engagement members 51 of circular cross-section formed integrally with the container 1 for engaging identical pairs of engagement members of adjacent containers 50. The 10 engagement members 51 are arranged so that when one pair of engagement members 51 is engaged with a complimentary pair of engagement members, the four engagement members define four corners of a square and the engagement members 51 of each pair define the diagonally opposite corners of the square. The 15 spacing between the engagement members 51 is such that when the two pairs of engagement members 51 are inter-connected, they inter-connect with a relatively tight fit. Pairs of engagement members are provided adjacent the four corners of each major face 20 and 21, and adjacent the ends of the end walls 5 and 6, the 20 top wall 7 and the bottom wall 8.

Use of the ice pack containers 50 is substantially similar to use of the ice pack containers 1 and 45, and a plurality of the ice pack container 50 may be stacked, and/or assembled in substantially similar configurations as the ice pack containers 1 and 45.

Referring now to Figs. 18 and 19 there is illustrated an ice pack container 55 according to another embodiment of the invention. The ice pack container 55 is substantially similar to the ice pack container 1 and similar components are identified by the same reference numerals. The main difference between the ice pack container 55 and the ice pack container 1 is in the connecting means. In this embodiment of the invention only one connecting means is provided on each of the two major faces, 20 and 21. The connecting means on the major front face 20

comprises one connecting formation of a pair of inter-engageable complimentary connecting formations, which in this case is provided by an elongated engagement member 56 formed integrally with the container 55 and extending longitudinally of the 5 container 1 and outwardly of the outer surface 17. The connecting formation on the major rear face 21 is provided by an elongated recess 57 formed integrally with the container and extending longitudinally thereof and inwardly of the outer surface 17 for slidably engaging a corresponding engagement member 56 of an adjacent container 55. Longitudinally extending side edges 58 and 59 of the engagement member 56 and engagement recess 57, respectively, are correspondingly dove-tailed so that an engagement member 56 of one container 55 slidably engages an engagement recess 57 of an adjacent container 55. Ends 60 and 61 10 of the engagement member 56 and engagement recess 57, respectively, are of semi-circular shape and also dove-tailed. 15

In use, the ice pack containers 55 can be connected together with their respective major faces 20 and 21 of adjacent containers 55 abutting each other and with the engagement member 56 of the 20 major face 20 of one container 55 engaging the engagement recess 57 of the major face 21 of the adjacent container.

Referring now to Figs. 20 and 21 there is illustrated an ice pack container 65 according to another embodiment of the invention. The ice pack container 65 is substantially similar to the ice 25 pack container 1 and similar components are identified by the same reference numerals. In this embodiment of the invention one of the connecting means comprises an engagement member 66 extending from the top wall 7 which is formed by an inlet tube for charging the hollow interior region 9 of the container 65. A complimentary connecting formation of another connecting means 30 comprises a hinge member 67 hingedly connected to the top wall 7 by a plastic hinge 68 and formed integrally with the container 65. An opening 69 of circular cross-section in the hinge member 67 engages an engagement member 66 of an adjacent container 65 as

illustrated in Fig. 21 for connecting the containers 65 together. The hinge member 67 is hingeable along an intermediate plastic hinge 70 so that the hinge member 67 may be hinged as illustrated in Fig. 20 to allow the opening 69 to be engaged on an engagement member 71 extending from the major face 20 of the front side wall 3 when not in use. An engagement recess 72 is provided in the major face 21 of the rear side wall 4 for engaging an engagement member 71 of an adjacent container 65.

In use, to connect a plurality of containers 65 the hinge members 67 are hinged to lie substantially parallel to the top wall 7 so that the engagement opening 69 of one hinge member 67 engages a corresponding engagement member 66 of the adjacent container 65. The hinge member 67 of the last container 65 in the assembly may be hinged along the intermediate plastic hinge 70 so that the engagement opening 69 engages the engagement member 71 on the major face 20 of the last container 65. Alternatively, the hinge member 67 of the last container 65 may extend upwardly as illustrated in Fig. 21 to provide a means for hanging the connected assembly of containers 65. The engagement members 71 on the front side walls 3 engage the engagement recesses 72 on the rear side walls 4 of adjacent containers 65.

Referring now to Fig. 22 there is illustrated an ice pack container 75 according to another embodiment of the invention. The ice pack container 75 is substantially similar to the ice pack container 1 and similar components are identified by the same reference numerals. In this embodiment of the invention the connecting formation of one of the connecting means comprises an engagement member 76 carried on a hinge member 77 which is hingedly connected to the top wall 7 by a pair of plastic hinges 78 and is integrally formed with the container 1. The connecting formation of the other connecting means is provided by an engagement recess 79 formed in the top wall 7 of the container 75 for engaging an engagement member 76 of an adjacent container 75. The engagement member 76 is provided with a lip 80 for engaging

an undercut 81 in the engagement recess 79. An engagement recess 82 is provided in the front major face 20 of the container 75 for engaging the engagement member 76 of the container 75 when the engagement member 76 is not in use.

5 In use, a plurality of containers 75 are assembled together and are connected by engaging the engagement member 76 of one container 75 with the engagement recess 79 of the adjacent container 75.

Referring now to Figs. 23 and 24 there is illustrated an ice pack 10 container 85 according to a still further embodiment of the invention. The ice pack container 85 is substantially similar to the ice pack container 50 illustrated in Figs. 13 to 17 and similar components are identified by the same reference numerals. In this embodiment of the invention instead of pairs of 15 engagement members being provided on the end walls 5 and 6 and top and bottom walls 7 and 8, pairs of engagement recesses 86 are provided in place of the pairs of engagement members. The pairs of engagement members 51 on the major faces 20 and 21 are engageable with the engagement recesses 86 of adjacent containers 20 85. Additionally, the pairs of engagement members 51 of the major face 20 and 21 are engageable with engagement members 51 on major faces 20 and 21 of adjacent containers 85. Otherwise the ice pack container 85 is similar to the ice pack container 50, and use of the ice pack container 85 is likewise similar to use 25 of the ice pack container 50.

While the ice pack containers have been described as being of plastics material, the ice pack containers may be of any other suitable material. Where the ice pack containers are of plastics material, they may be formed by any other suitable plastics 30 forming process besides injection blow moulding, for example, extrusion blow moulding, injection moulding, rotational moulding and the like.

While particular shapes and construction of connecting means have been described, other suitable connecting means which comprise one connecting formation of a pair of releasably inter-engageable complimentary connecting formations may be used. Needless to 5 say, connecting formations of other cross-section may be used. For example, it is envisaged that the cross-section of the engagement members and the engagement recesses may be triangular, square, rectangular, hexagonal, octagonal, or indeed any other suitable or desired shape. It is also envisaged in certain cases 10 that the engagement members may be tapered, and where engagement recesses are provided, the engagement recesses would be provided with corresponding tapers.

It is also envisaged that the connecting means may be provided in the form of hooks and eyes, for example, by hooks and eyes which 15 are sold under the trade mark VELCRO.

Needless to say, ice pack containers of other suitable shape or construction may be provided.

It is also envisaged that where the engagement members are provided as pairs of engagement members 51 and/or engagement recesses are provided in pairs as for example engagement recesses 20 86, it is envisaged that each connecting formation may comprise more than two engagement members and likewise more than two corresponding engagement recesses. In other words, a formation of a connecting means may comprise a plurality of adjacent engagement members which would engage a plurality of corresponding adjacent engagement members of another container 25 with a relatively tight fit, or a plurality of adjacent engagement recesses of another container, likewise, with a relatively tight fit.

30 It is envisaged that the hinge members provided on the ice pack container described with reference to Figs. 20 to 22 may be used for displaying the ice pack containers for sale, for example, a

plurality of ice pack containers may be connected together as illustrated in Figs. 21 and 22, and one of the hinge members may be used for hanging the ice pack container on a display rack or the like. It is also envisaged that the plastic hinges 5 connecting the hinge members of the containers of Fig. 20 to 22 may be sufficiently weak to permit a purchaser to detach the hinge members from the containers after purchase if desired.

CLAIMS

1. An ice pack container (1) of the type comprising a container (1) having an outer surface (17) and an inner surface (18), the inner surface (18) defining a hollow interior region (9) for storing a freezable liquid, characterised in that two connecting means (38,39) are provided on the container (1) for releasably connecting the container (1) to respective adjacent containers (1), each connecting means (38,39) comprising one of a pair of complimentary releasably inter-engageable connecting formations (38,39) for engaging the other of the pair of connecting formations (38,39) on the other of the containers (1).
2. An ice pack container as claimed in Claim 1 characterised in that the outer surface (17) defines at least two opposite faces (20,21) of the container, one of the connecting means (38,39) being provided on one outer face (20,21), and the other connecting means (38,39) being provided on the other outer face (20,21).
3. An ice pack container as claimed in Claim 1 or 2 characterised in that the connecting formation (38,39) of the connecting means of one face (20,21) is of one type of connecting formation of the pair of complimentary inter-engageable connecting formations (38,39), and the connecting formation (38,39) of the connecting means of the other face (20,21) is of the other type of connecting formation of the pair of complimentary inter-engageable formations (38,39) to facilitate connecting a plurality of the containers (1) in series.
4. An ice pack container as claimed in Claim 2 or 3 characterised in that a plurality of connecting means (38,39) are provided on each face (20,21), on which connecting means (38,39) are provided.
5. An ice pack container as claimed in Claim 4 characterised in that the connecting formations (38,39) on a face (20,21) of the

container are similar to each other.

6. An ice pack container as claimed in any preceding claim characterised in that the container (1) comprises a pair of spaced apart opposite major side walls (3,4) defining respective 5 opposite major outer faces (20,21), a connecting means (38,39) being provided on each of the major outer faces (20,21).

7. An ice pack container as claimed in Claim 6 characterised in that the opposite major side walls (3,4) are joined by a minor wall (5,6,7,8) extending around the periphery of the major side 10 walls (3,4), the minor wall defining a minor outer face (25,26,28,29), and a connecting means being provided on the minor outer face (25,26,28,29).

8. An ice pack container as claimed in Claim 7 characterised in that the minor wall (5,6,7,8) comprises a pair of spaced apart 15 minor end walls (5,6) joined by spaced apart top and bottom minor walls (7,8) which together with the two major side walls (3,4) define the hollow interior region (9), the end, top and bottom walls (5,6,7,8) defining respective minor outer end, top and bottom faces (25,26,28,29), and a connecting means (38) being provided on one of the minor outer end faces (25,26). 20

9. An ice pack container as claimed in Claim 8 characterised in that respective connecting means (38,39) are provided on opposite minor outer faces (25,26,27,28) of the container (1).

10. An ice pack container as claimed in Claim 8 or 9 25 characterised in that the connecting formation (38) of the connecting means (38,39) of one of the minor faces (25,26,28,29) is of one type of connecting formation (38) of the pair of complimentary inter-engageable connecting formations (38,39), and the connecting formation (39) of the connecting means (38,39) of 30 the other minor face (25,26,28,29) is of the other type of connecting formation (38,39) of the pair of complimentary inter-

engageable connecting formations (38,39).

11. An ice pack container as claimed in any of Claims 6 to 10 characterised in that four connecting means (38,39) are provided on each of the opposite major faces (20,21).
- 5 12. An ice pack container as claimed in Claim 11 characterised in that the major faces (20,21) are of substantially rectangular shape and a connecting means (38,39) is provided adjacent each of four diagonally opposite corners of the respective major faces (20,21).
- 10 13. An ice pack container as claimed in any of Claims 8 to 12 characterised in that two connecting means (38,39) are provided on each minor face (25,26,28,29) having a connecting means, the respective connecting means (38,39) being provided at opposite ends of the minor face (25,26,28,29).
- 15 14. An ice pack container as claimed in any preceding claim characterised in that the connecting formation (38) of one of the connecting means (38,39) comprises an engagement member (38) projecting outwardly from the outer surface (17) of the container (1) for engaging a complimentary engagement recess (39) in another container (1), and the connecting formation (39) of another connecting means (38,39) is provided by an engagement recess (39) extending into the outer surface (17) of the container (1) for engaging a corresponding engagement member (38) of another container (1).
- 20 25 15. An ice pack container as claimed in Claim 14 characterised in that each engagement member (38) is of circular cross-section.
16. An ice pack container as claimed in Claim 14 or 15 characterised in that each engagement recess (39) is of circular cross-section.

17. An ice pack container as claimed in any of Claims 14 to 16 characterised in that each engagement member (38) and each engagement recess (39) of the container (1) are sized to engage a corresponding engagement recess (39) or engagement member (38) of another or other containers (1) with a relatively tight interference type fit.

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18. An ice pack container as claimed in any of Claims 14 to 17 characterised in that the cross-sectional area of each engagement member (38) is substantially similar to the cross-sectional area of each engagement recess (39) of the container (1).

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19. An ice pack container as claimed in any of Claims 10 to 18 characterised in that the connecting formation (38) of the connecting means (38,39) on the minor outer end face (25,26,28,29) is an engagement member (38) extending outwardly from the surface (17) of the container (1).

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20. An ice pack container as claimed in any of Claims 1 to 13 characterised in that the connecting formation (51) of each connecting means (51) comprises a pair of spaced apart engagement members (51) projecting outwardly of the outer surface (17) of the container (50) for engaging a corresponding pair of engagement members (51) projecting outwardly of the outer surface (17) of another container (1), the engagement members (51) of each connecting means (51) defining a diagonal of a square which is defined by four of the engagement members (51) of the pair of complimentary inter-engageable connecting formations (51), the spacing between the two engagement members (51) of each connecting formation (51) being such as to provide a relatively tight fit when the two engagement members (51) of the said connecting formation (51) engage the two engagement members (51) of the other said connecting formation (51).

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21. An ice pack container as claimed in any of Claims 1 to 13 characterised in that the connecting formation (56,57) of one of

the connecting means (56,57) comprises an elongated engagement member (56) extending longitudinally along the outer surface (17) of the container and outwardly thereof.

22. An ice pack container as claimed in Claim 21 characterised
5 in that the connecting formation (56,57) of another connecting means (56,57) is provided by an elongated engagement recess (57) extending longitudinally along the outer surface (17) of the container (55) and inwardly thereof.

10 23. An ice pack container as claimed in any of Claims 1 to 13 characterised in that the connecting formation (67) of one of the connecting means (66,67) comprises a hingeable member (67) hingedly connected to and extending from the container (65).

15 24. An ice pack container as claimed in Claim 23 characterised in that an engagement opening (69) is formed in the hingeable member (67) for engaging a complimentary engagement member (66) of another container.

25. An ice pack container as claimed in Claim 24 characterised in that the engagement opening (67) is engageable with an engagement member (66) on the container (65).

20 26. An ice pack container as claimed in any preceding claim characterised in that at least one air circulating groove (32,33) is provided in the outer surface (17) of the container (1) for facilitating air flow relative to outer surface (17) of the container (1).

25 27. An ice pack container as claimed in Claim 26 characterised in that the air circulating groove (32,33) is provided on a major face (20,21) of the container (1).

28. An ice pack container as claimed in Claim 26 or 27 characterised in that each air circulating groove (32,33) extends

the length of the container from one end wall (7,8) to the other as a longitudinal groove (32).

29. An ice pack container as claimed in Claim 28 characterised in that a pair of spaced apart longitudinal grooves (32) are 5 provided.

30. An ice pack container as claimed in any of Claims 26 to 29 characterised in that an air circulating transverse groove (33) extends transversely across the major face from one end wall (5,6) to the other.

10 31. An ice pack container as claimed in Claim 30 characterised in that a pair of spaced apart transverse grooves (33) are provided.

15 32. An ice pack container as claimed in any of Claims 26 to 31 characterised in that the air circulating grooves (32,33) are interconnected.

33. An ice pack container as claimed in any preceding claim characterised in that a sealable inlet (10,12) is provided to the hollow interior region (9) of the container (1).

20 34. An ice pack container as claimed in Claim 33 characterised in that the sealable inlet (10,12) comprises an elongated inlet tube (10) extending from the container (1).

35. An ice pack container as claimed in Claim 34 characterised in that the inlet tube (10) extends from a minor wall (7) of the container (1).

25 36. An ice pack container as claimed in Claim 34 or 35 characterised in that the inlet tube (10) is provided in a recess (11) formed in the minor wall (7).

37. An ice pack container as claimed in any of Claims 34 to 36 characterised in that the inlet tube (10) is of heat sealable and deformable plastics material.

38. An ice pack container as claimed in any of Claims 33 to 37
5 characterised in that the inlet (10) is provided in a minor top wall (7) of the container (1).

39. An ice pack container as claimed in any preceding claim characterised in that the container (1) is of plastics material.

40. An ice pack container as claimed in any preceding claim
10 characterised in that the container (1) contains a freezable liquid in the hollow interior region (9).

41. An ice pack container as claimed in Claim 40 characterised in that the freezable liquid is water.

42. An ice pack container as claimed in Claim 40 or 41
15 characterised in that the freezable liquid is a mixture of water and sodium carboxymethylcellulose.

1/14

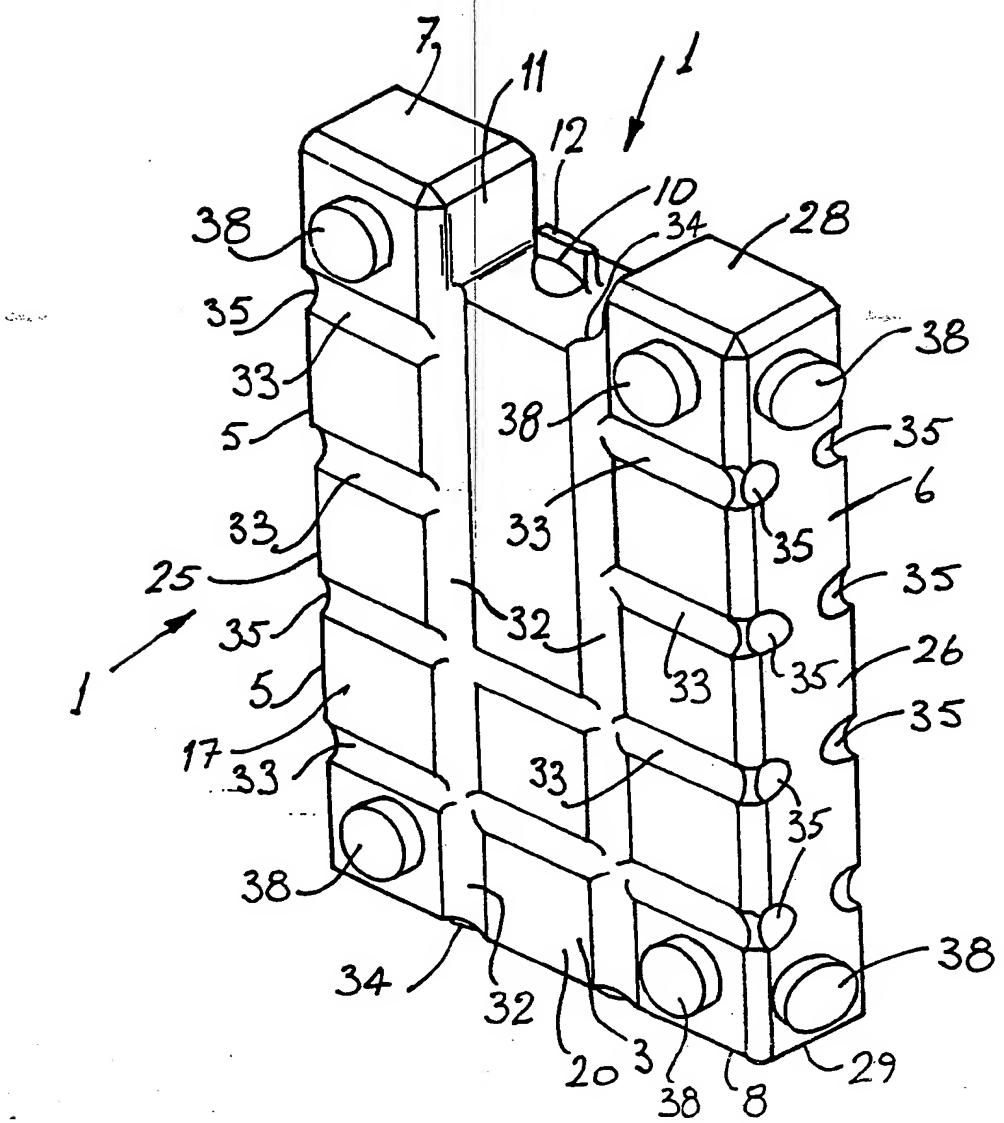


Fig. 1

2/14

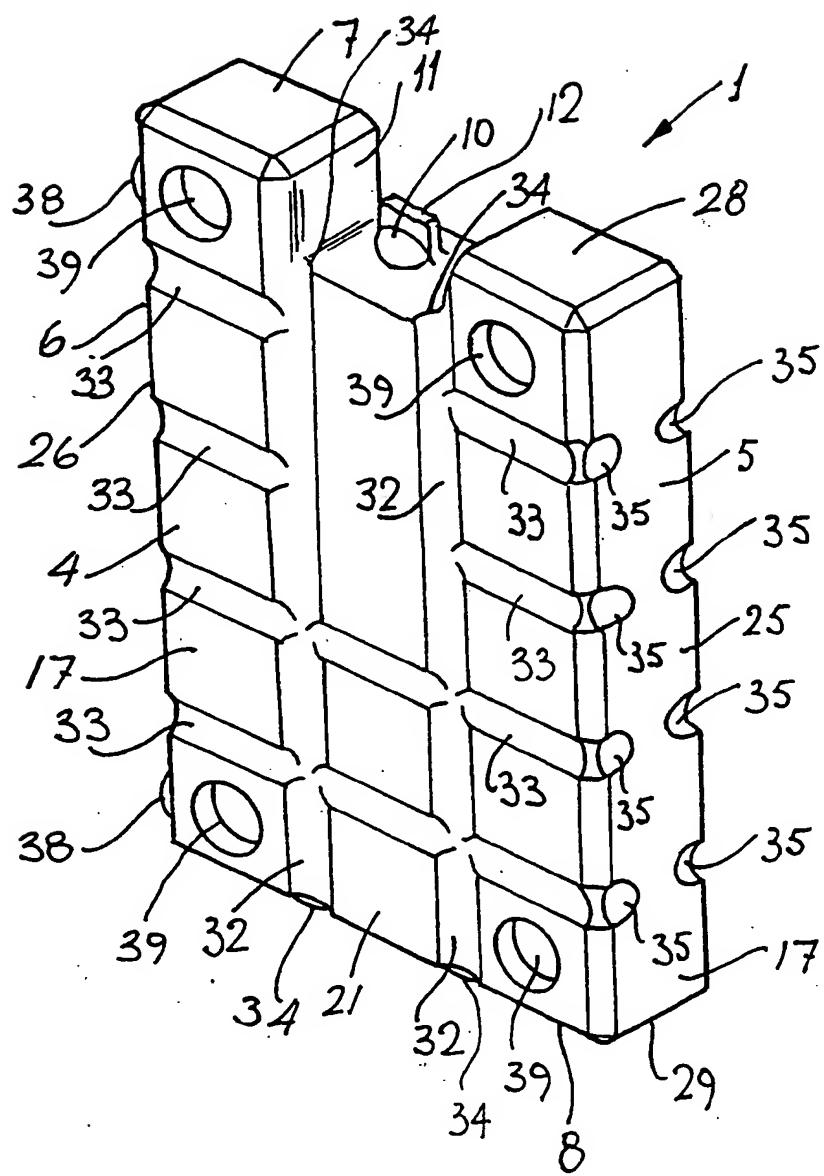
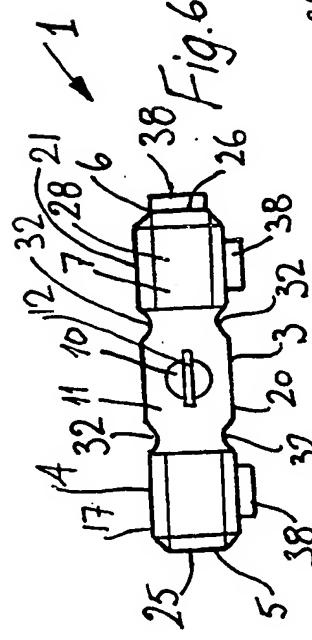


Fig. 2



4/14

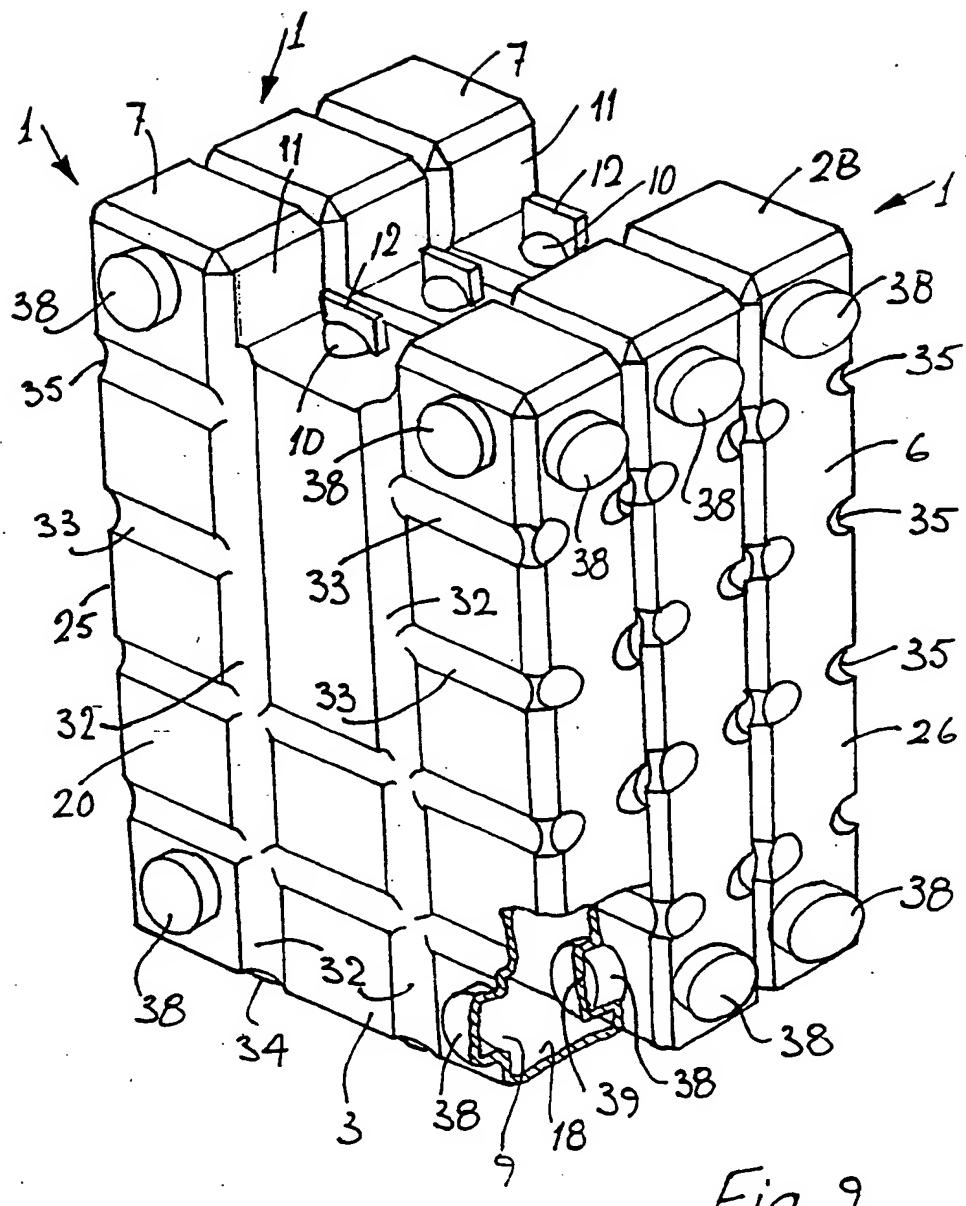


Fig. 9.

5/14

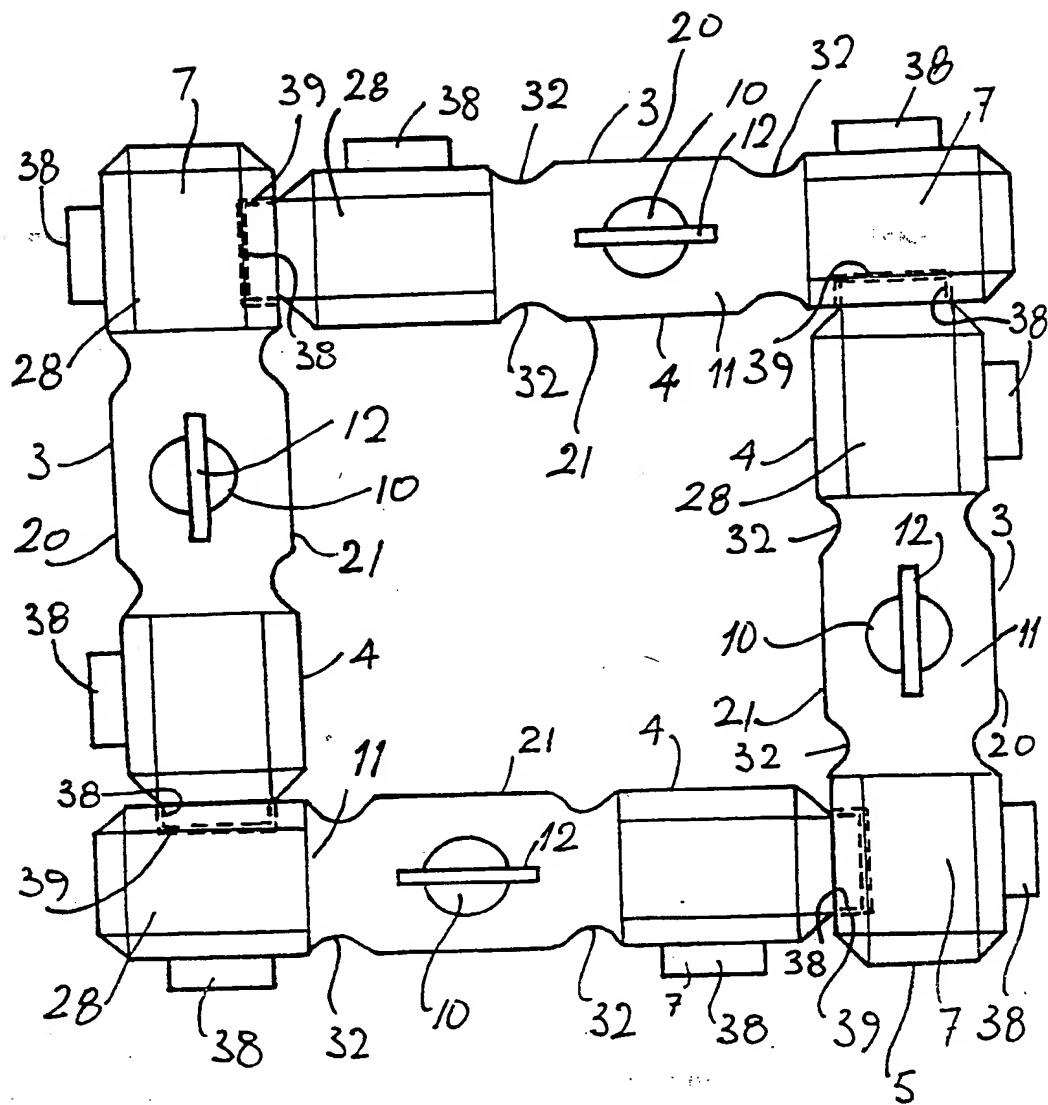
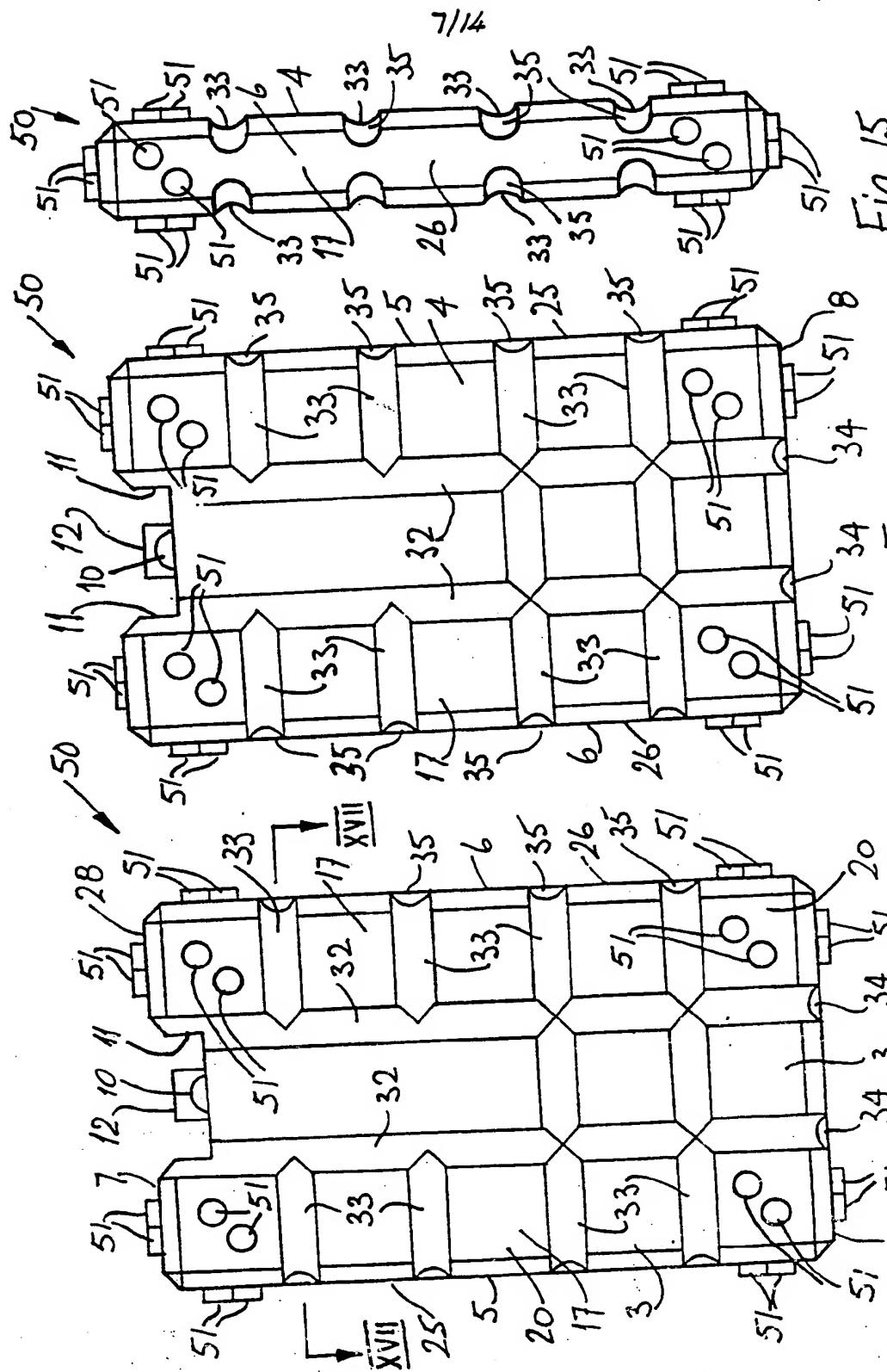


Fig. 10



151

Fig. 14

Fig. 13

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8/14

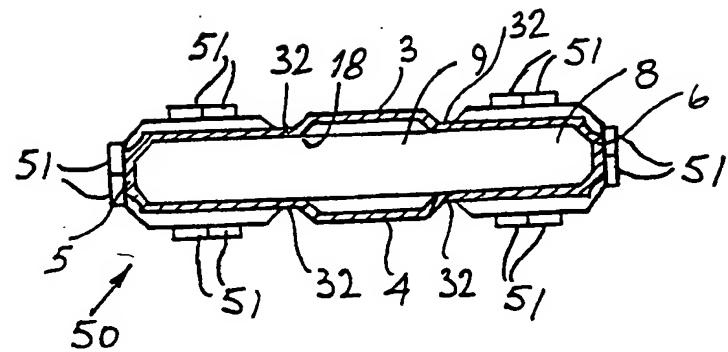


Fig. 17

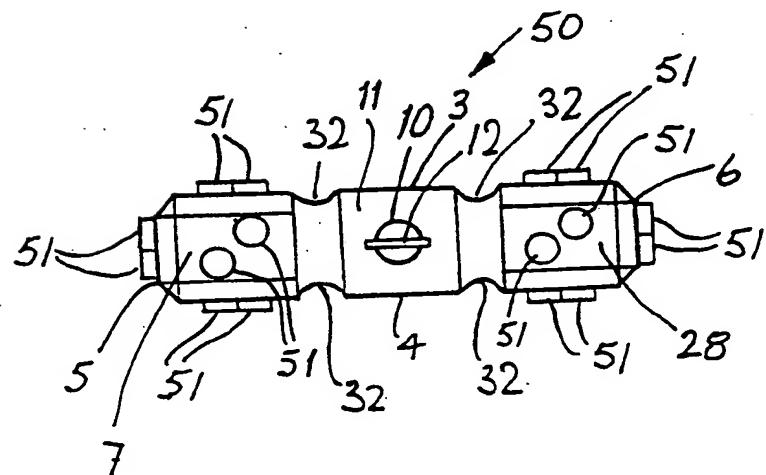
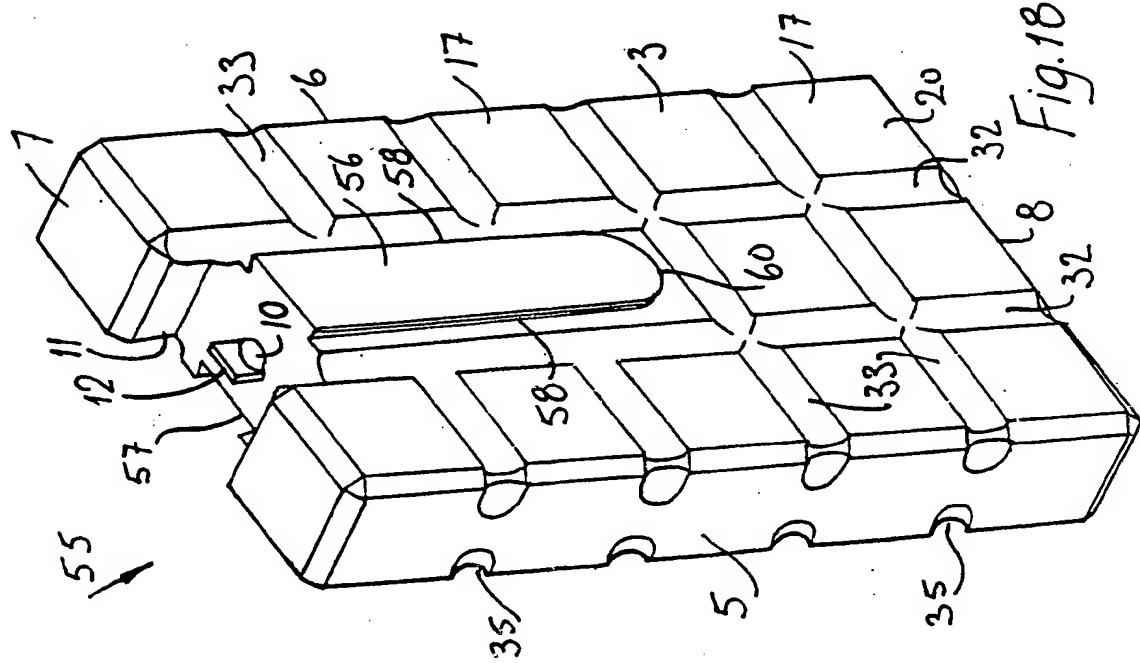
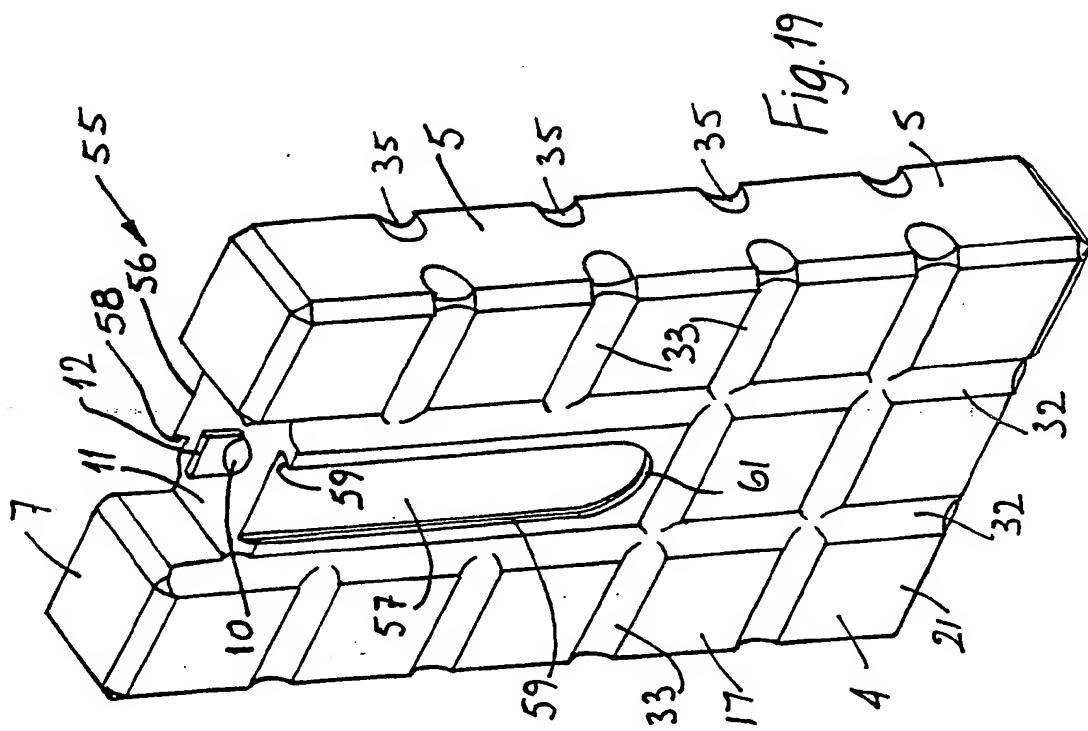


Fig. 16

9/14



10/14

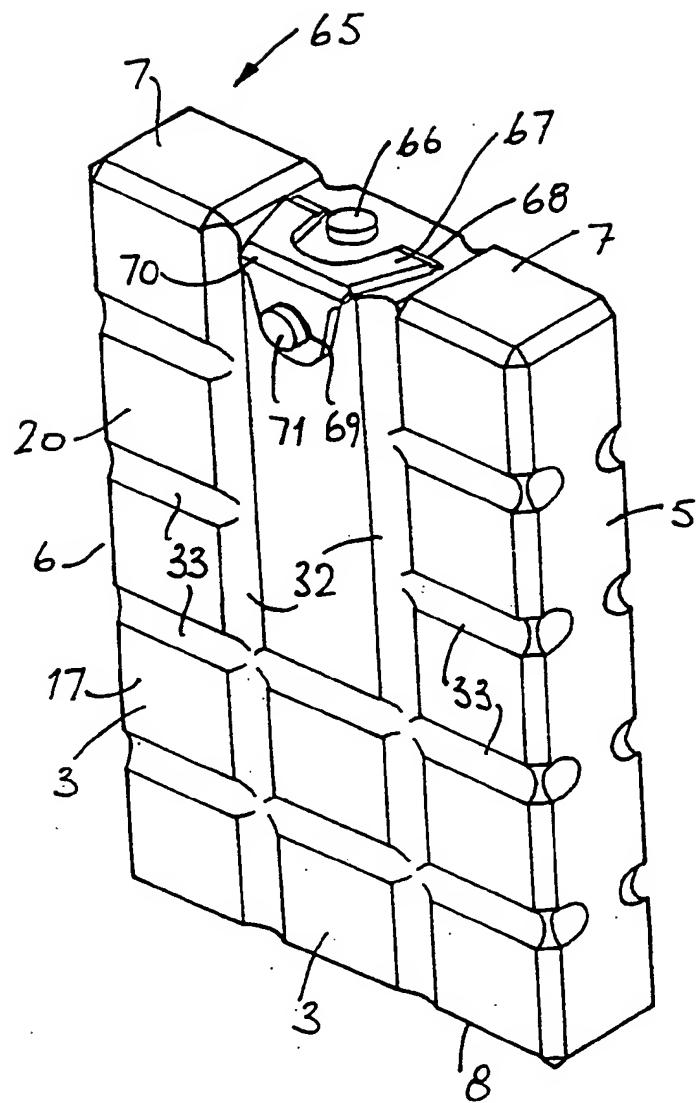


Fig. 20

11/14

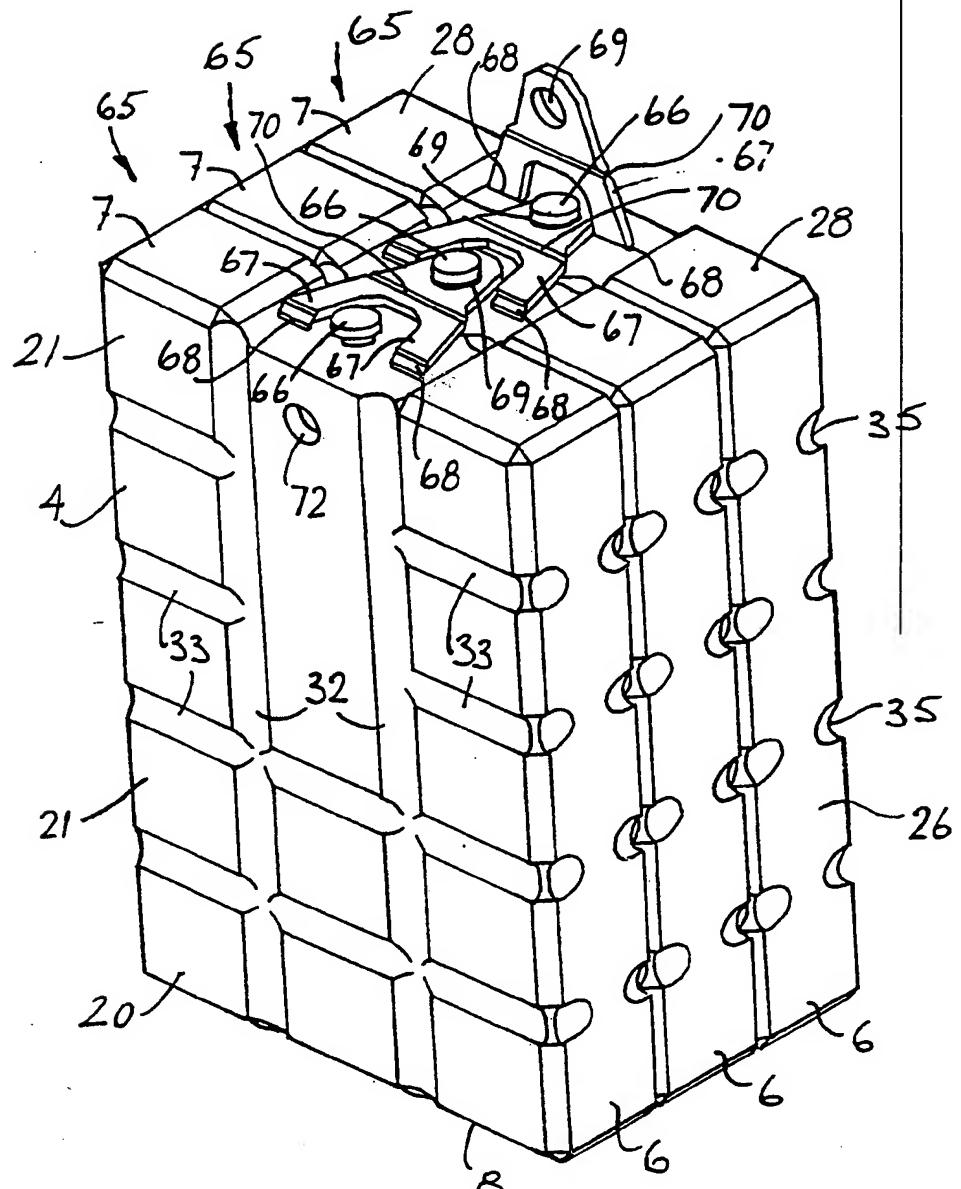
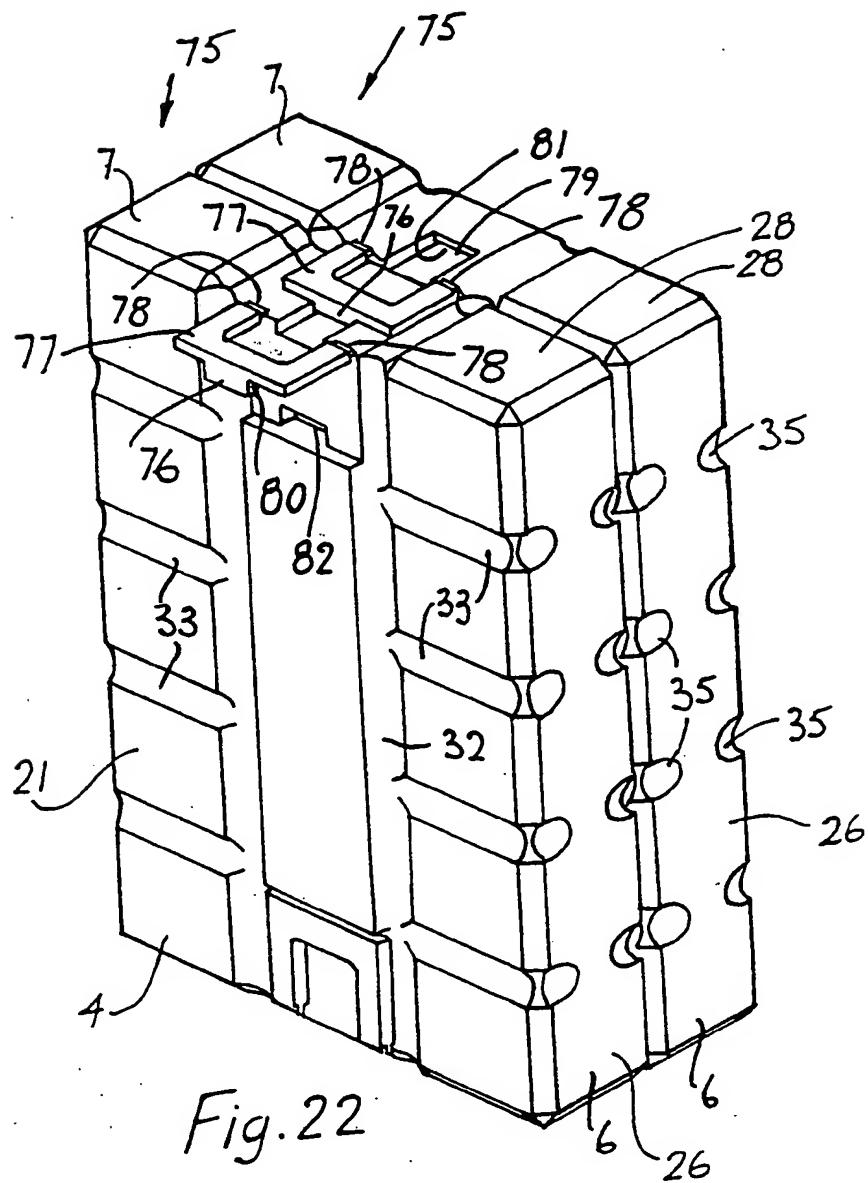


Fig. 21

12/14



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13/14

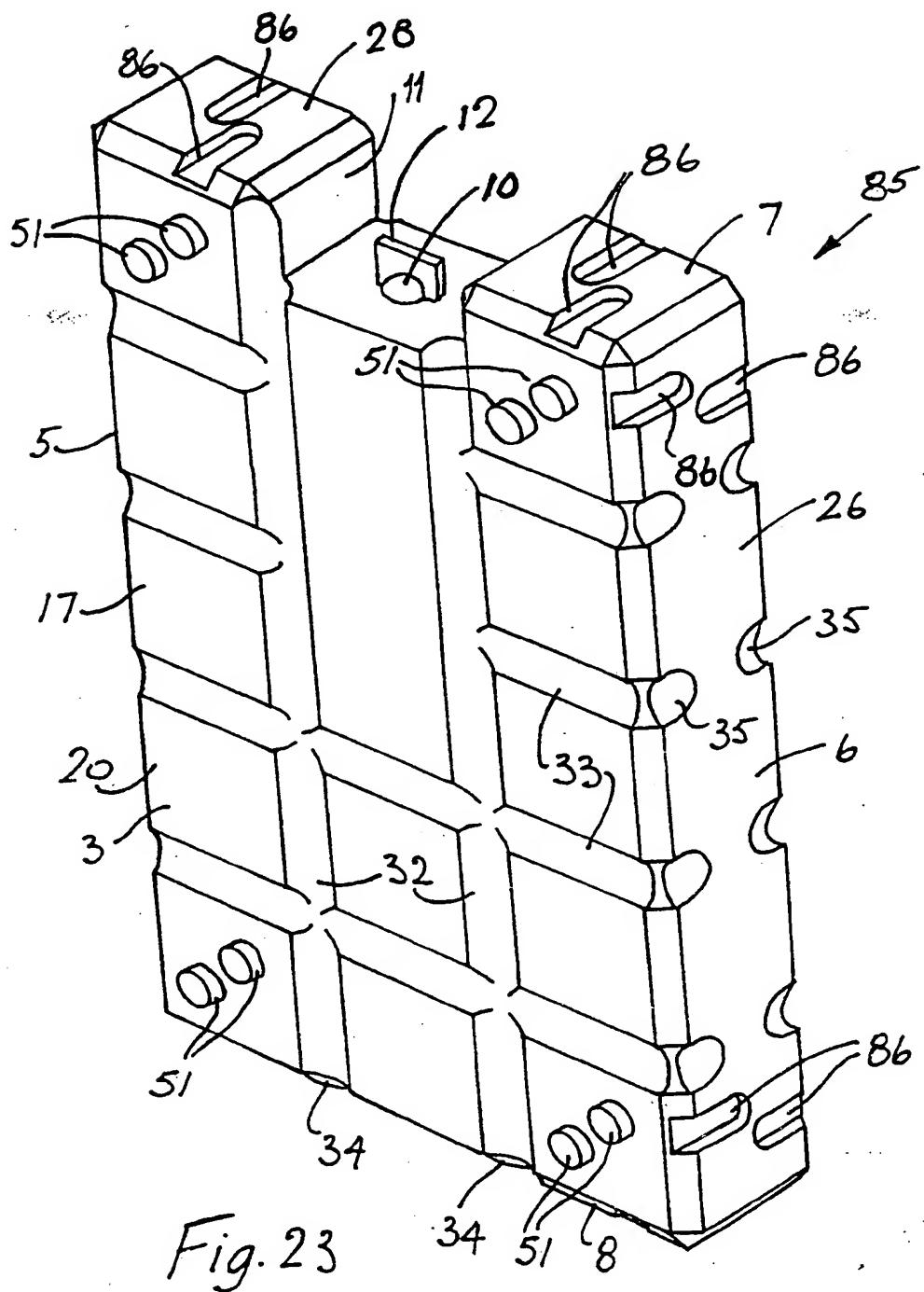


Fig. 23

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14/14

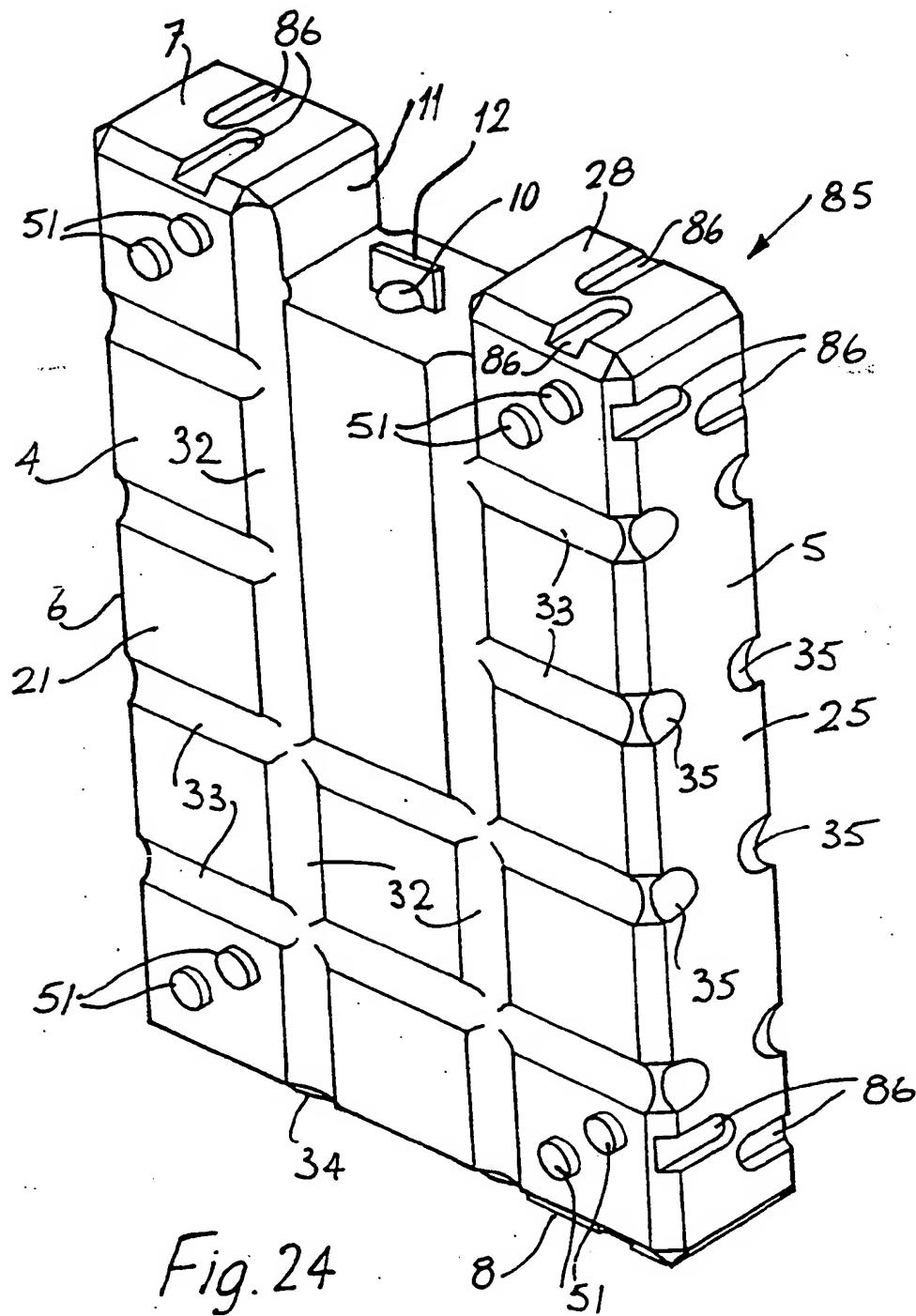


Fig. 24

INTERNATIONAL SEARCH REPORT

PCT/IE 93/00031

International Application No

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all)⁶

According to International Patent Classification (IPC) or to both National Classification and IPC

Int.Cl. 5 F25D3/08; B65D21/02

II. FIELDS SEARCHED

Minimum Documentation Searched⁷

Classification System	Classification Symbols		
Int.Cl. 5	F25D	;	B65D ; A63H

Documentation Searched other than Minimum Documentation
to the Extent that such Documents are Included in the Fields Searched⁸III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹

Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	US,A,4 656 840 (LOOFBOURROW) 14 April 1987	1-7
A	see column 2, line 49 - column 4, line 14; figures 1-5	14-16, 18,33, 38-40
X	US,A,5 024 067 (MAIER) 18 June 1991	1-3
A	see column 1, line 41 - column 2, line 30; figures 1-4	21,22, 33,39,40
A	DE,U,8 907 798 (BRENNER) 26 October 1989 see page 6, line 11 - page 8, line 31; figures 1-3	1-8, 14-19,39
		-/-

¹⁰ Special categories of cited documents :¹⁰

- ^{"A"} document defining the general state of the art which is not considered to be of particular relevance
- ^{"E"} earlier document but published on or after the international filing date
- ^{"L"} document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- ^{"O"} document referring to an oral disclosure, use, exhibition or other means
- ^{"P"} document published prior to the international filing date but later than the priority date claimed

^{"T"} later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention^{"X"} document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step^{"Y"} document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.^{"&"} document member of the same patent family

IV. CERTIFICATION

Date of the Actual Completion of the International Search 18 AUGUST 1993	Date of Mailing of this International Search Report 25.08.93
International Searching Authority EUROPEAN PATENT OFFICE	Signature of Authorized Officer BOETS A.F.J.

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		
Category	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
A	US,A,3 194 426 (BROWN) 13 July 1965 see column 2, line 3 - column 3, line 29; figures 1-7 ---	1,21,22, 39
A	US,A,3 496 670 (SLOOP) 24 February 1970 see column 3, line 48 - column 6, line 38; figures 1-13 ---	1,23-25
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A	DE,U,9 000 085 (WALTER HENKELS) 6 December 1990 see page 6, line 26 - page 7, line 26; figures 2-3 ---	33-36,38
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**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.**

IE 9300031
SA 74331

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
The members are as contained in the European Patent Office EDP file on
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US-A-5024067	18-06-91	None		
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US-A-3496670	24-02-70	None		
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